

Application No.: 10/625,586
Docket No.: KB4615 US NA

Remarks

Claim 1 has been amended to delete the modifying words "life protection" from before the word "article" in the preamble to remove any implied performance requirement for the recited article. In view of this, reconsideration and allowance of the Claims of the present invention is respectfully requested.

Rejection under 35 U.S.C. 112, first paragraph

Claims 1-19 are newly rejected under 35 U.S.C. 112, first paragraph, because the specification does not enable one skilled in the art to make the claimed invention. Specifically, the rejection states:

"[T]he specification while being enabling for a penetration resistant life protection article that has at least 38 flexible layers, does not reasonably provide enablement for a "plurality of layers" in the broad description of the term that could have two layers and provide a protection article meeting the NIJ standards disclosed by Applicants in the specification. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. It is noted that the examples disclosed by the Specification involve at least 38 layers (22 layers of "C" and 16 layers of "D"). It is the Examiner's interpretation of the present disclosure that a "penetration resistant life protection article" of the present invention must have at least 38 layers to meet the disclosed standards for issued by NIJ. (Refer to page 1 of the Specification)"

In this rejection, the Examiner is making several arguments. First, the Examiner is arguing that the specification and claims are only enabling for a penetration resistant life protection article that has at least 38 flexible layers. Second, the Examiner is arguing that the specification and claims are only enabling for a penetration resistant life protection article capable of resisting threats at the levels specified in the NIJ standards listed in the specification. As the claims are currently amended, both arguments are without merit.

As to the first argument, the claim recites "a plurality of flexible layers". Since this covers any number of layers more than one layer, clearly this is enabling from the claim itself. The number of flexible layers is described in

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page 18, lines 15-16, as: "The term 'article' is used herein to mean at least two flexible spike resistant layers as described herein." This alone provides adequate support to enable one skilled in the art to select a number in the described range of at least two. The Examiner interprets the Examples to limit the enablement for the number of flexible layers recited in claim 1. In contrast, it has been well established that Examples of the invention are preferred embodiments of the invention and that claims are not limited to the specific structures illustrated therein. The Examiner has erroneously concluded that the Examples teach using 38 flexible layers as recited in claim 1. Instead, the preferred embodiment illustrated in Example 1 of the invention only used 26 flexible layers as recited in Claim 1. The preferred embodiment of the invention illustrated in Example 5 utilized 22 flexible layers of "C" made of staple yarn, which read on the layers recited in Claim 1, in combination with 16 layers of "D" made of continuous filament yarn, which do not read on the layers recited in Claim 1. Thus, contrary to the belief of the Examiner, none of the Examples used as many as 38 flexible layers as recited in Claim 1.

Furthermore, the specification describes the number of flexible layers in the article of the invention and the relationship of the number of flexible layers to the other essential elements of the invention recited in Claim 1 including the areal density of the combined layers, the linear density of the staple yarns, and the fabric tightness factor of the woven fabric. This is more than enough to enable those skilled in the art to select the number of flexible layer to make numerous embodiments throughout the scope of the claims.

The number of layers and relationship of layer to other elements is described, for instance, on page 4, lines 37, through page 5, line 3, as follows:

The greater the number of layers 12,14, the greater the areal density of the combined layers 12,14. The lower the linear density of the staple yarns making up the fabrics of the layers 12,14, the greater the number of layers 12,14 that can be used with an acceptable areal density of the combined layers 12,14. For instance, when the fabrics are made of 220 decitex staple yarn in both the warp and the fill directions, the number of woven fabric layers 12,14 is in the range of 3 to 50. In contrast, when the fabrics are made of 110 decitex staple yarn in both the warp and the fill directions, the number of woven fabric layers 12,14 is in the range of 6 to 80. [Emphasis added.]

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In addition, page 17, lines 23-31, reads:

For instance, when the woven fabrics in the layers are made from staple yarns of 220 decitex in both the warp and fill directions, the number of staple fibers or ends in the warp and fill directions can be 60 to 90 and, depending on the number of staple fibers or ends that are selected in this range, the number of layers can be 3 to 50. Corresponding variations for article specifications exist when staple yarns of different linear density are used. [Emphasis Added.]

Therefore, the specification clearly provides enabling disclosure to one of ordinary skill in the art on the number of flexible layers commensurate with the number of layers recited in Claim 1.

As to the Examiner's second argument, Claim 1 has been amended to delete the words "life protection" from the preamble to remove any implied performance requirement for the article recited in Claim 1. Claim 1, as now amended, does not contain any express or implied minimum performance requirement, much less the NIJ performance standard that the Examiner is inappropriately reading into Claim 1. Claim 1 is limited to the structure recited therein and the inherent protection of that structure and no more.

The specification clearly states that "preferred", not all, embodiments of the articles of the invention meet certain NIJ performance requirements against spike and optionally ballistic threats. Specifically, page 17, lines 16-21, read: "The article 10 of the present invention preferably meets at least the Level 1, more preferably the Level 2, and most preferably the Level 3, performance requirement against spike as described in NIJ Standard-0115.00 entitled "Stab Resistance of Personal Body Armor" dated September 2000. [Emphasis Added.]" When the article 20, as depicted in Figure 3, optionally includes a second plurality of layers 22 resistant to ballistic projectiles, page 18, lines 2-8, states: "Article 20 of the present invention preferably meets at least the Type IIA, more preferably the Type II, and most preferably the Type IIIA, ballistic performance requirement against projectiles as described in NIJ Standard-0101.04 entitled "Ballistic Resistance of Personal Body Armor" dated September 2000. [Emphasis Added.]"

The object of the invention is written in page 2, lines 27-30, as "it is an object of this invention to provide an improved flexible light weight article that

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resists penetration by spikes ..." This is accomplished by the article recited in Claim 1, even when the article has a number of flexible layers that do not meet the performance standards recited in Claims 14 or 16.

Note that Claims 14 and 16 are the only Claims that recite a level of protection for the recited article. The doctrine of claim differentiation is clearly applicable here. It holds that if a limitation is found in a dependent claim and that limitation is the sole meaningful difference between the dependent claim and the claim upon which it depends, then the limitation in the dependent claim should not be read into claim upon which it depends.

In view of these reasons, this rejection is not justified and should be withdrawn.

Rejection under 35 U.S.C. 112, second paragraph

Claims 1-19 are newly rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claiming the subject matter which applicant regards as the invention. No reason is specified as to why these claims fail to meet this statutory requirement. If this rejection is based on the same grounds specified in the above rejection under 35 U.S.C. 112, first paragraph, then the above reply rebuts this rejection as well. As such, this rejection is without basis and should be withdrawn.

Rejection under 35 U.S.C. 112, second paragraph

Claims 1-19 are newly rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. The rejection states:

"See MPEP Section 2172.01. The omitted elements are: the number of layers that form the plurality of flexible layer as to provide a penetration resistant article. It is noted that the examples disclosed by the Specification involve at least 38 layers (22 layers of "C" and 16 layers of "D"). It is the Examiner's interpretation of the present disclosure that a "penetration resistant life protection article" of the present invention must have at least 38 layers to meet the disclosed standards for issued by NIJ. (Refer to page 1 of the Specifications) Therefore, the claim is rendered indefinite because it fails to indicate the number of layers comprising a "plurality of layers"."

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It is respectfully submitted that the range of the number of layers recited in Claim 1 is appropriate and a narrower range is not an essential limitation to the claimed invention. As shown above in response to other rejections, the application nowhere suggests the number of flexible layers should be limited to 38 or more layers. As explained above in response to other rejections, the layers of "D" are made from continuous filament yarn. So Example 5 discloses a preferred embodiment that used 22 flexible layers as recited in claim 1, not 38 flexible layers as believed by the Examiner. The number of flexible layers of the articles in the Examples is not required for all embodiments described in the specification and recited in the claims. Since Claim 1 does not recite any performance requirement, it is incorrect to limit it to a number of layers of a preferred embodiment meeting the NIJ standards recited in Claim 14 or 16. As such, Claim 1 correctly recites a plurality of layers, rather than the number alleged to be required by the Examiner.

As such, this rejection is unjustified and should be withdrawn.

Rejection Under 35 U.S.C. 103(a)

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiou et al (U.S. Patent 6,133,169) alone or in combination with Howland (US Patent 6,720,277).

The rejection states that Chiou et al discloses all the Claims except Chiou et al does not disclose the use of yarns made from staple fiber. Then the Examiner cites Howland (US Patent 6,720,277) to show use of staple fiber in puncture resistant materials.

Applicants respectfully traverse this obviousness rejection. The cited reference does not teach or suggest the claimed improvement. No suggestion can be found in any of the references for making the combination suggested by the Examiner. Even if the references were considered in combination by one of ordinary skill in the art, the claimed invention would not have been and is not obvious therefrom. In view of these facts, the Examiner has not established a prima facie case of obviousness.

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Chiou et al does not disclose or make obvious the use of any staple yarn, much less staple yarn having the properties recited in Claim 1, much less fabric made of staple yarn as recited in Claim 1, much less a plurality of layers of fabric made of staple yarn as recited in Claim 1. In fact, Chiou et al does not disclose any of Claim 1. The present invention recites an article comprising a plurality of flexible layers of woven fabric made from staple yarn having a tenacity of 3 to 16 grams per dtex. In contrast, Chiou et al disclose continuous filament yarns having a tenacity of greater than 20 grams per dtex and as much as 50 grams per dtex or more (refer to col. 4, lines 1-3). Thus, Chiou et al clearly teaches away from using staple yarn having the tenacity recited in the present invention. As such, Chiou et al does not teach or suggest the present invention to anyone skilled in the art.

Howland (US Patent 6,720,277) is not prior art to the present invention. Thus, Howland is not relevant to the subject application. Howland was published April 13, 2004. Whereas, the present non-provisional application was filed on July 23, 2003 and claims priority to earlier filed provisional application 60/404,930 filed August 26, 2002 way before the publication of Howland.

It should also be noted that none of the limitations recited in the dependent Claims are disclosed in or suggested by Chiou et al. As such, these Claims should be allowed.

As such, it is respectfully submitted that this rejection is overcome and should be withdrawn.

Conclusion

The foregoing reasons are believed to comprise a full and complete response to the outstanding non-final Examiner's Office Action. Further, it is submitted that any basis for the rejections of the Claims has been obviated.

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Thus, Claims 1-19 are respectfully submitted to be in condition for allowance. Favorable reconsideration with subsequent allowance of Claims 1-19 is respectfully requested. If any matter remains to be resolved before allowance, the Examiner is encouraged to call Applicants' attorney at the number provided below.

Respectfully submitted,



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